

REMARKS

Claims 21-40 are pending in this application, with claims 21, 35, and 39 being the only independent claims. Claims 21, 35 and 39 have been amended. Reconsideration of the above-identified application, in view of the following amendments and remarks, is respectfully requested.

Claims 21-27 and 35-40 stand rejected under 35 U.S.C. §102(b) as anticipated by U.S. Pub. No. 2003/0172654 (“*Lawheed*”). Claims 28-34 stand rejected under 35 U.S.C. §103(a) as obvious over *Lawheed* in view of WO 85/02881 (“*Lipovetz*”).

Applicants note the Examiner has cited DE 3 619 547 (“*Koch*”) in his rejection of dependent claims 28-34. However, it is apparent the Examiner’s intention was to reject dependent claims 28-34 based on the combination of U.S. Pub. No. 2003/0172654 (“*Lawheed*”) and *Lipovetz*. Applicants will respond to the rejections based on the combination of U.S. Pub. No. 2003/0172654 *Lawheed* and *Lipovetz*. For the following reasons, reconsideration of these rejections is requested.

Independent claim 21 has been amended to recite “wherein the low-pressure expansion device is a roots blower having triple blade rotors arranged and dimensioned so that the working fluid is expanded therein and heat energy is transformed to mechanical energy”. Independent claims 35 and 39 have been correspondingly amended. Support for the amendments may be found in Fig. 2 of the drawings. No new matter has been added. The cited art fails to teach or suggest the expressly recited subject matter of now amended independent claims 21, 35 and 39.

Lawheed discloses a system and method for converting solar energy to electrical and thermal energy. *Lawheed* (paragraph [0043]) describes a system and methodology for converting low temperature thermal energy to electrical energy using a Rankine cycle mechanism to thereby drive an electrical generator and produce a desired type of electricity. *Lawheed* (Fig. 6) depicts a Rankine cycle mechanism that includes two lobes 86, 88 (also see Fig. 5), where the lobes 86, 88 are sized so that during opposite rotation the projections, which each comprise surfaces 110 can turn

and engage female cavities 112. As shown in Fig. 3 of *Lawheed*, the two lobes 86, 88 are interconnected by a gear at a location indicated by reference designator 102. *Lawheed* thus teaches a Rankine cycle mechanism with only two lobes. Independent claims 21, 35 and 39 each expressly require a roots blower having triple blade rotors.

An advantage associated with the use of a roots blower having triple blade rotors is the achievement of a noise reduction of up to 30 dB in comparison to a roots blower that is provided with double blade rotors. Consequently, the acoustic resonance is much less in a piping system that is connected to a roots blower configured in accordance with the claimed invention. Moreover, a roots blower having triple blade rotors demonstrates a more continuous suction and expansion in comparison to a roots blower that is provided with double blade rotors. The movement of such triple blade rotors exhibits lower pulsation levels.

A key difference between applicants' claimed invention and the device disclosed in *Lawheed* is the triple blade rotors of a roots blower in contrast to the lobes of a Rankine cycle mechanism of *Lawheed*. *Lawheed* provides the skilled person with no reason to attempt to achieve the roots blower of now-amended independent claims 21, 35 and 39. A gear at the location depicted by reference designator 102 interconnects the two lobes of *Lawheed*. Hence, the only way for the lobes to interact with each other is at this location. A further interaction between the lobes of *Lawheed* would lead to a loss of power, and this interaction must be synchronized with the gear. Accordingly, the skilled person has no reason or motivation to add another interaction between the two lobes.

Moreover, the skilled person has no reason to add a direct interaction between the two lobes. A roots blower works only with a direct interaction between the rotors and, thus, the skilled person is provided with no reason or motivation to replace the lobes of the *Rankine* cycle mechanism of *Lawheed* with a roots blower. Moreover, the teachings of *Lawheed* provide the skilled person with

no reason whatsoever to use a roots blower having triple blade rotors. There is simply no reason for the skilled person to use three lobes in the Rankine cycle mechanism of *Lawheed*. Accordingly, *Lawheed* fails to teach or suggest now amended independent claims 21, 35 and 39.

The Examiner has acknowledged that *Lawheed* fails to teach or suggest an “absorbent step”, as recited in dependent claims 28, 35, and 36, and cites *Lipovetz* for this feature.

Applicants, however, respectfully disagree that the combination of *Lawheed* and *Lipovetz* achieves a low-pressure expansion device that is a roots blower having triple blade rotors arranged and dimensioned so that the working fluid is expanded therein and heat energy is transformed to mechanical energy, as recited in now-amended independent claim 21. *Lipovetz* discloses a system for converting heat energy of the environment connected to a heat energy source. The disclosure of *Lipovetz* includes two drawings, i.e., Fig. 1 and Fig. 2. There is nothing whatsoever in Fig. 1 and Fig. 2 of *Lipovetz* regarding a roots blower having triple blade rotors, as recited in now amended independent claims 21, 35 and 39. The combination of *Lawheed* and *Lipovetz* thus fails to teach or suggest applicants’ claimed low-pressure expansion device that is a roots blower having triple blade rotors, because *Lawheed* and *Lipovetz* make no mention whatsoever of a roots blower having triple blade rotors. Applicants accordingly assert that dependent claims 28, 31 and 32 are therefore patentable based on their dependency from independent claims 21, 25 and 39.

Reconsideration and withdrawal of all the rejections under 35 U.S.C. §102(b) and §103(a) are therefore in order, and a notice to that effect is respectfully requested.

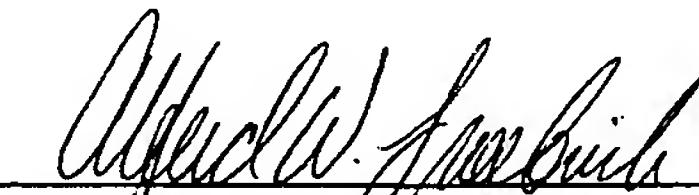
In view of the patentability of independent claims 21, 35 and 39, dependent claims 22-34, 36-38 and 40 are also patentable over the prior art for the reasons set forth above, as well as for the additional recitations contained therein.

Based on the foregoing remarks, this application is in condition for allowance. Early passage of this case to issue is respectfully requested.

Should the Examiner have any comments, questions, suggestions, or objections, the Examiner is respectfully requested to telephone the undersigned in order to facilitate reaching a resolution of any outstanding issues.

Respectfully submitted,
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